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I. PURPOSE AND SCOPE

The objective of National Spent Nuclear Fuel Program (NSNFP) engineering analyses is to interpret existing information and develop other technical information needed to support the mission of the NSNFP.

This procedure applies to analyses performed by the NSNFP that are used to generate results that will be relied on to make key programmatic decisions or to protect the safety of personnel or the environment. Analyses may include development and interpretation of information, including the results of one or more models and one or more calculations.

II. SUMMARY

This procedure establishes the responsibilities and processes for planning, validating, and performing engineering analyses. Analyses documentation is prepared, checked, and placed under document control in accordance with PSO 3.04, Engineering Documentation.

III. PROCEDURE

A. Planning

PSO Technical Staff

1. Complete the Analysis Plan Checklist (Form 3.03-1).
2. Obtain review and approval of the Analysis Plan Checklist and any attached explanations by the quality engineer (QE) and the responsible technical lead.

B. Model Validation

PSO Technical Staff

1. If analysis relies on one or more models, employ one or more of the following methods to ensure processes, systems, and phenomena are represented to an appropriate level of detail based on the intended use of the results. If model validation consists of a sequence of separate activities, each model validation activity should be documented upon its completion.

   a. Validate the model by testing in accordance with PSO 11.01, Testing.

   OR

   b. Use and document an alternative approach that includes one or more of the following activities:

PSO Technical Staff

(1) Review of model results for reasonableness and consistency in explanation of all relevant data

(2) Comparison of analysis results with the results from alternative conceptual models, including supporting information to establish bases for confidence in selected models

(3) Calibration and corroboration within experimental data sets

(4) Technical review through publication in open literature

(5) Peer review or review by international collaborators.

C. Performing Analyses

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1. Perform analyses, addressing each of the items identified on the Analysis Planning Checklist.

2. Ensure that any testing is performed in accordance with PSO 11.01, Testing.

3. If used to generate results that are not individually checked according to the criteria in PSO 3.04, ensure software is in accordance with PSO 19.01, Software Control, and Form 19.01-1 has been completed and submitted to the Document Control Coordinator.

D. Complete Documentation

PSO Technical Staff

1. Prepare documentation in accordance with PSO 3.04, Engineering Documentation, and include the Analysis Plan Checklist.

IV. REFERENCES

None.

V. DEFINITIONS

Terms appearing in italics followed by the notation “see glossary” are defined in the NSNFP Documents Manual Introduction and Glossary.

VI. ATTACHMENTS

None.

VII. RECORDS

The following records generated as a result of this procedure require retention in accordance with the identified classification and NSNFP Program Management Procedure 17.01.

Lifetime

A. Analyses Plan Checklist

Nonpermanent

None.

VIII. PROCEDURE FLOW DIAGRAM